

## Claims

1. An adapter unit (90) including  
a channel send/receive unit (150) which sends signaling data to  
an exchange of a circuit-switched telecommunications network  
(22) and receives signaling data from the exchange,  
a data packet send/receive unit (158) which at least in a  
normal operating mode sends data packets into a data packet  
transfer network (12) and receives data packets from the data  
packet transfer network (12),  
and a data insertion/extraction unit (160) which at least in  
the normal operating mode inserts signaling data coming from  
the channel receive unit (150) into data packets and forwards  
them to the data packet send unit (158) and which extracts  
signaling data from data packets that are received from the  
data packet receive unit (158) and forwards it to the channel  
send unit (150),  
and an operating mode switchover unit which, in the event of a  
fault on the side of the data packet transfer network (12) or  
in the event of a fault in a telecommunication system operating  
on the data packet transfer network (12), switches over into an  
emergency operating mode in which telecommunication via the  
circuit-switched telecommunications network (22) is ensured.
2. The adapter unit (90a) as claimed in claim 1,  
characterized in that  
in the emergency operating mode the operating mode switchover  
unit entrusts the forwarding of the signaling data to a  
different telecommunication system than in the normal operating  
mode,  
wherein in the emergency operating mode signaling data coming  
from the different telecommunication system is preferably sent  
via the channel send unit (150).

3. The adapter unit (90b) as claimed in claim 1,  
characterized in that  
in the emergency operating mode the operating mode switchover  
unit entrusts the forwarding of the signaling data to a  
5 subscriber terminal (80),  
wherein in the emergency operating mode signaling data coming  
from the subscriber terminal (80) is preferably sent via the  
channel send unit (150).

10 4. The adapter unit (90c, 90d) as claimed in claim 1,  
characterized by a protocol conversion unit which in the  
emergency operating mode is entrusted by the operating mode  
switchover unit to perform a protocol conversion of the  
signaling data into a signaling protocol for a data packet  
15 transfer network and preferably also vice versa.

5. The adapter unit (90c) as claimed in claim 4,  
characterized by a network access unit which in the emergency  
operating mode is entrusted by the operating mode switchover  
20 unit to perform network access functions for terminals of a  
data packet transfer network, in particular a gatekeeper  
function in accordance with a protocol of the H.323 protocol  
family or a SIP registrar function in accordance with a SIP  
protocol or a protocol which is based thereupon.

25 6. The adapter unit (90d) as claimed in claim 4,  
characterized by a terminal unit which in the emergency  
operating mode is entrusted by the operating mode switchover  
unit to perform the function of a terminal in terminal-to-  
30 terminal connections of a data packet transfer network, in  
particular in peer-to-peer connections.

7. The adapter unit (90) as claimed in one of the claims 1 to  
6,

characterized by at least one of the following features,  
the data packets are transferred in accordance with an Internet  
protocol in the data packet transfer network (12),  
the circuit-switched telecommunications network (20, 22) is a  
5 fixed network or a mobile radio network,  
the signaling data complies with a signaling protocol for  
exchange lines between an exchange and a terminal or between an  
exchange and a telecommunication system (12) which switches to  
or from a plurality of terminals (60 to 64) which are operated  
10 at the telecommunication system (12),  
wherein the signaling protocol is preferably the protocol DSS1  
or a protocol which is based thereupon.

8. A method for operating a telecommunications system (14),  
15 with the following steps being executed in a normal operating  
mode:

receiving signaling data of a circuit-switched  
telecommunications network (20, 22),  
tunneling (160, 190) the received signaling data via a data  
20 packet transfer network (12),  
processing the tunneled signaling data in a telecommunication  
system (14) in accordance with a signaling protocol.

9. The method as claimed in claim 8,  
25 characterized by the steps:  
detecting the failure of the data packet transfer network (12)  
or of the telecommunication system (14),  
automatically switching over into an emergency operating mode  
after the detection of the failure.

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10. The method as claimed in claim 9,  
characterized by the steps:  
detecting the reactivation of the data packet transfer network  
(12) or of the telecommunication system (14),

automatically switching over into the normal operating mode after the detection of the reactivation.

11. The method as claimed in claim 9 or 10,  
5 characterized by at least one of the following steps being executed in the emergency operating mode:  
forwarding the signaling data coming from the channel receive unit (150) to a further telecommunication system, preferably to a telecommunication system having significantly restricted  
10 performance features in comparison with the telecommunication system (14) which is used in the normal operating mode, wherein the functions of the telecommunication system are preferably performed by an IP telephone (80),  
forwarding signaling data of the further telecommunication  
15 system to the channel send unit (150).

12. The method as claimed in claim 11,  
characterized by at least one of the following steps being executed in the emergency operating mode:  
20 an IP telephone (80) detecting the failure or the reactivation, registering at least one further IP telephone (82) at the further telecommunication system, preferably retaining the interface protocol or a plurality of interface protocols in comparison with the normal operating mode.

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13. The method as claimed in claim 9 or 10,  
characterized by at least one of the following steps being executed in the emergency operating mode:  
forwarding the signaling data coming from the channel receive  
30 unit (150) to a telephone (80),  
wherein the telephone performs functions of a telephone which is operated directly at the circuit-switched telecommunications network (20, 22),  
forwarding signaling data of the telephone to the channel send

unit (150).

14. The method as claimed in claim 13,  
characterized by at least one of the following steps being  
5 executed in the emergency operating mode:  
an IP telephone (80), which in the emergency operating mode  
performs functions of a telephone which is operated directly at  
the circuit-switched telecommunications network (20, 22),  
detecting the failure or the reactivation.

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15. The method as claimed in claim 9 or 10,  
characterized by at least one of the following steps being  
executed in the emergency operating mode:  
performing a protocol conversion of the signaling data into a  
15 signaling protocol for a data packet transfer network,  
transferring the converted signaling data to an IP telephone  
(82),  
receiving signaling data in accordance with a signaling  
protocol for a data packet transfer network from an IP  
20 telephone (82) and performing a protocol conversion for the  
received signaling data in accordance with a protocol for the  
signaling in the circuit-switched telecommunications network  
(22).

25 16. The method as claimed in claim 15,  
characterized by at least one of the following steps being  
executed in the emergency operating mode:  
an adapter unit (80c, 80d) detecting the failure or the  
reactivation,  
30 registering at least one IP telephone (82) with the adapter  
unit (90c) or setting up a peer-to-peer connection between the  
adapter unit (90d) and the IP telephone (82).

17. The method as claimed in claim 15 or 16,

characterized in that  
the signaling protocol for the data packet transfer network is  
a protocol of the H.323 protocol family or a SIP protocol or a  
peer-to-peer protocol.